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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,908	11/03/2003	Stefan Raspl	DE920010103US1/IBMP026	7758
63056	7590	12/10/2007		
MOLLBORN PATENTS ATTN: IBM 2840 COLBY DRIVE BOULDER, CO 80305			EXAMINER CHEN, TE Y	
			ART UNIT 2161	PAPER NUMBER
			NOTIFICATION DATE 12/10/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

Application No.

10/700,908

Applicant(s)

RASPL, STEFAN

Examiner

Susan Y. Chen

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,12-15,18-21 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,12-15,18-21 and 24-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Response to Amendment***

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Oct. 15, 2007 has been entered.

This office action is in response to the amendment filed on Oct. 15, 2007.

Claims 1, 4-10, 12-15, 18-21 and 24-26, are pending for examination. Claims 1, 12, 15 and 21 have been amended; claims 2-3, 11, 16-17 and 22-23 have been canceled.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 4-10, 12-15, 18-21 and 24-26, are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for iterative clustering [e.g.,

Please refer to Sections: 0042-0046], does not reasonably provide enablement for non-iterative clustering. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

As to claims 1, 15 and 21, the instant invention using a K-mean clustering technique to iterative clustering the claimed a set of records, which is deemed to be performed iteratively as specified in sections: 0003 & 0015 - 0046. In addition, the examiner disagrees with applicant's arguments that section: 0015 support the non-iterative processing. These sections were excerpted as following:

[0015] The various features of the present invention and the manner of attaining them will be described in greater detail with reference to the following description, claims, and drawings, wherein reference numerals are reused, where appropriate, to indicate a correspondence between the referenced items, and wherein:

[0016] FIG. 1 is a process flow chart illustrating a method of the record clustering system of the present invention; and

[0017] FIG. 2 is a schematic illustration of an exemplary operating environment in which a record clustering system of the present invention can be used."

[0042] The resulting clustering may be further refined by reducing the number of the clusters. For example, it may be desirable to dissolve a cluster having a small size, i.e., having a small number of records. This may be accomplished by means of the following iterative process:

[0043] Rank the clusters by size.

[0044] Select the smallest cluster.

[0045] For each record of the cluster, find the one of the larger clusters that matches most of the significant attributes. If more than one cluster should be considered, either choose the largest of these clusters or use some kind of distance measure to find the nearest cluster.

[0046] Repeat until the desired number of clusters has been reached or if the similarity of records and clusters is too small.

Thus, in contrary to applicant's arguments, the claimed non-iterative processing contradicted to the instant specification. As such, the instant specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. Furthermore, because the claimed "non-iterative" limitation mutually exclusive with the instant invention scope, thereby, there will have no prior art rejection for this limitation until the issues being resolved.

As to claims 4-10, 12-14, 18-20 and 24-26, these claims have the same defects as their base claims respectively, hence, are rejected for the same reason.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-10, 12-15, 18-21 and 24-26, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,012,058 issued to Fayyad et al. (hereinafter referred as FAYYAD), in view of U.S. Patent No. 6,636,862 issued to Lundahl et al. (hereinafter referred as Lundahl).

Claim 1:

FAYYAD discloses a method of clustering a set of records, each of the records having attribute values for a set of attributes [e.g., Abstract], the method comprising:

for each attribute of the set of attributes, determining a characteristic value for said each attribute, the characteristic value being one of a mean value and a median value of the attribute values of said attribute across the records [e.g., col. 3, lines 4-14, the use of K-mean Euclidean distance technique at col. 6, lines 27-63];

for each attribute value, determining a deviation from the characteristic value of said each attribute [e.g., col. 3, lines 27-36, col. 4, lines 42 – col. 5, lines 56, Fig. 4 and associated texts];

for each record, sorting the set of attributes based on deviation of the attribute values from the characteristic value of said each attribute, to provide a key; and [e.g., col. 8, lines 31-45, the RSDistSort(RSDist) at col. 17, Appendix B];

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combining the set of records based on the key into a clustering results that includes a plurality of clusters, wherein the key comprises an ordered list of the set of attributes and the deviations from the characteristic value of said each attribute; [e.g., col. 9, lines 46-56, the use of FindMergePartner(CSIndex, CSNew) processing at col. 23, Appendix C].

FAYYAD did not specifically disclose the details of refining the clustering result by: identifying a cluster having a smallest number of records; for each record of the identified cluster, searching another cluster having records with best matching keys; and distributing the cluster with the smallest number of records to the other cluster having records with best matching keys, to reduce the total number of clusters.

However, Lundahl gives the details the claimed cluster refining features, comprising: identifying a cluster having a smallest number of records [e.g., col. 16, lines 36 – col. 17, lines 4]; for each record of the identified cluster, searching another cluster having records with best matching keys [e.g., col. 15, lines 1-26]; and distributing the cluster with the smallest number of records to the other cluster having records with best matching keys, to reduce the total number of clusters [e.g., col. 15, lines 44-59, col. 22, lines 1-32].

FAYYAD and Lundahl are both of the same endeavor to optimizing the clustering of a set of records based on the characteristic value of each attributes associated with the record via K-mean Euclidean distance technique, thus, with the teachings of FAYYAD and Lundahl in front of him/her, it would have been obvious for an ordinary

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skilled person in the art at the time the invention was made to apply the detailed cluster refining features disclosed by Lundahl in FAYYAD's system, because by doing so, as suggested by Lundahl, the combined invention will use the well-known Kohonen SOM neural network technique to refining and distribute the smallest number of records to the other cluster in a best key matching mode, and thereby optimizing the system clustering processing.

Claims 4:

except the limitations recited in claim 1, the combined invention of FAYYAD and Lundahl further discloses determining the deviation comprises calculating a difference between each said attribute value and the characteristic value of each said attribute [e.g., FAYYAD: col. 11, lines 34-56].

Claim 5:

except the limitations recited in claim 1, the combined invention of FAYYAD and Lundahl further discloses determining the deviation comprises calculating a difference between said each said attribute value and the characteristic value of the corresponding attribute, and dividing the difference by the characteristic value of said each said attribute [e.g., FAYYAD: col. 11, lines 48-56].

Claim 6:

except the limitations recited in claim 1, the combined invention of FAYYAD and Lundah further discloses sorting the set of attributes comprises using absolute values of the deviations of the attribute values as a sorting criterion [e.g., FAYYAD: the RSDistSort(RSDist) at col. 17, Appendix B].

Claim 7:

except the limitations recited in claim 1, the combined invention of FAYYAD and Lundah further discloses that a first record of the set of records contains a first key and a second record of the set of records contains a second key; and further comprising placing the first key and the second key into a single cluster if the first key and the second key have identical sub-sequences of a first length [e.g., Abstract, lines 1-7, Lundah: Fig. 5 and associated texts].

Claim 8:

except the limitations recited in claim 1, the combined invention of FAYYAD and Laundahl further discloses that first record of the set of records contains a first key and a second record of the set of records contains a second key; and further comprising placing the first key and the second key into a single cluster if the first key and the second key have identical sub-sequences of absolute values of the deviations [e.g., Lundah: col. 20, lines 6 -58].

Claim 9:

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except the limitations recited in claim 1, the combined invention of FAYYAD and Laundahl further discloses that a first record of the set of records contains a first key that has a first sub-sequence, and a second record has a second sub-sequence contains a second key; and further comprising placing the first key and the second key into a single cluster if the first and second sub-sequences comprise the same set of attributes [e.g., Abstract, lines 1-7].

Claim 10:

except the limitations recited in claim 9, the combined invention of FAYYAD and Laundahl further discloses that the first and second sub-sequences comprise the same set of attributes irrespective of a sign of the deviations of the attribute values [e.g., Lundah: col. 20, lines 6 -58, Note the absolute value of an attribute is irrespective of a sing].

Claim 12:

except the limitations recited in claim 9, the combined invention of FAYYAD and Laundahl further discloses reducing a length of the first sub-sequence and a length of the second sub-sequence in order to find a best match [e.g., Lundah: col. 15, lines 44-59].

Claim 13:

except the limitations recited in claim 11, the combined invention of FAYYAD and Laundahl further discloses using a distance measure to find another cluster for a record of the identified cluster [e.g., the K-mean technique at FAYYAD: Abstract, lines 9-16].

Claim 14:

except the limitations recited in claim 11, the combined invention of FAYYAD and Laundahl further discloses the distance measure comprises a Euclidean distance [e.g., FAYYAD: col. 6, lines 35-47; ].

Claim 15:

This claim incorporates substantially similar subject matter as claim 1 in form of computer program product, hence is rejected along the same rational.

Claim 18:

This claim incorporates substantially similar subject matter as claim 4 in form of computer program product, hence is rejected along the same rational.

Claim 19:

This claim incorporates substantially similar subject matter as claim 5 in form of computer program product, hence is rejected along the same rational.

Claim 20:

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This claim incorporates substantially similar subject matter as claim 6 in form of computer program product, hence is rejected along the same rational.

As to claims 21 and 24-26, these claims recite similar subject matter as claims 1, 4-10, 12-15 and 18-20 in form of an abstract computer system, hence are rejected along the same rational.

### **Response to Arguments**

Applicant's arguments with respect to claims 1, 4-10, 12-15, 18-21 and 24-26 have been considered but are moot in view of the new ground(s) of rejection.

### **Conclusion**

To expedite the process of re-examination, the examiner requests that all future correspondences in regard to overcoming prior art rejections or other issues (e.g. 35 U.S.C. 112) set forth by the Examiner prior to the office action, that applicant should provide and link to the most specific page and line numbers of the disclosure where best support is found (see 35 U.S.C. 132).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Yu et al. (U.S. Patent No. 6,871,201) which disclosed a method for building a space-splitting decision tree.

### **Points of Contact**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Y. Chen whose telephone number is 571-272-4016. The examiner can normally be reached on Monday - Friday from 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mofiz Apu can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Susan Y Chen  
Examiner  
Art Unit 2161



November 26, 2007